REMARKS

The Applicants request reconsideration of the rejection.

Claims 27-35 are now pending.

The Applicants submitted an Information Disclosure Statement and Form PTO-1449 on February 24, 2004, concurrently with the application. However, the Examiner has crossed out the Japanese references listed on the Form PTO-1449 with a notation that they were "not received". The Applicants submit that because the references were cited or submitted in the parent application and are thus available to the Examiner, it is not necessary to provide additional copies (37 CFR §1.98(d)(1)). However, additional courtesy copies can be provided at the Examiner's request. The Applicants respectfully request that the Examiner include an initialed Form PTO-1449 with the next Patent Office communication. A copy of the Form PTO-1449 filed on February 24, 2004 is attached for the Examiner's convenience.

The Applicants claim priority from Japanese Application No. 2000-154335, filed May 22, 2000. A certified copy of the Japanese Application was filed on August 25, 2000 in prior application No. 09/645,543. The Examiner's acknowledgement of the claim for priority and receipt of the priority document is respectfully requested.

Claims 14-15, 21 and 23-25 were deemed objectionable due to informalities listed on page 2 of the Office Action. These claims have been canceled without prejudice, rendering moot the objection.

Claims 19 and 24-26 were rejected under 35 U.S.C. §101. Claims 14-26 were rejected under 35 U.S.C. §102(e) as being anticipated by Zait et al., U.S. Patent Publication No. 2002/0194157 (Zait). These rejections also have been

rendered moot by the cancellation of claims 14-26; however, the Applicants note that the new claims fully comply with 35 U.S.C. §101, and are patentably distinguishable from Zait for the reasons that follow.

As set forth in new claim 27, the inventive database processing method partitions a relational database table into a set of partitions each corresponding to one of multiple dimensions, wherein a key range partitioning or a hash partitioning is further applied to each partition. The method determines columns of the database table to each of which a plurality of key ranges are allocated, wherein the columns correspond to more than two of the partitions and corresponding dimensional order. The method further allocates one data storage area for each of the key ranges assigned to each column, creates definition information defining how each of the data storage areas is allocated, and stores the definition information into a dictionary. According to this method, the dictionary can be referenced so as to identify one or more data storage areas that are specified by one or more given key values. The key values are specified through a request provided in a format such as a query or a request for data insertion.

Zait appears to belong to a related field of technology, disclosing a technique that partitions a database object at a first level by applying a first partitioning criterion to an object to produce a first set of partitions (using, for example, range-based partitioning), and that partitions the object at a second level by applying a second partitioning criterion to produce a second set of partitions (using, for example, hash-based partitioning). However, although Zait is alleged to allocate data storage areas for each key range assigned to each of plural columns, to store partition definition information defining how each of the data storage areas is allocated into a dictionary,

and to search one of the data storage areas specified by key values corresponding to the columns included in received data, referring to the dictionary, the passages cited by the Examiner actually indicate Zait's technique for performing partition pruning at the second level by inspecting partitioning metadata associated with a database table, and determining that selection criteria used in a statement uses the second-level partitioning key associated with the table. Zait does not suggest the allocation of data storage areas for each key range assigned to each of plural columns, or the storing of partition definition information defining how each of the data storage areas is allocated to one of the key ranges. Further, Zait does not suggest a dictionary that stores the partition information concerning the data storage areas, as claimed in claim 27. Finally, Zait does not disclose that, in response to respective first and second queries, a dictionary is referenced, and data storage areas are searched by being identified by key values contained in the first and second queries corresponding to respective first and second columns. Consequently, Zait cannot be said to disclose or fairly suggest the step of searching the dictionary in response to the request of data insertion to the database table, and inserting data in the request into the identified data storage area. Therefore, it is evident that the invention claimed in claim 27 is not anticipated by Zait.

Apparatus claim 30 is also patentable, reciting a dictionary for storing definition information that defines a relational database table, and a dictionary manager for identifying columns of the database table to each of which a key range partitioning is applied. The columns consist of more than two of those contained in the database table, and each column corresponds to one of multiple dimensions and corresponding dimensional order. Further, the dictionary manager allocates one

data storage area for each of the key ranges which are assigned beforehand to each of the columns, creating the definition information defining how each of the data storage areas is allocated to one of the key ranges. The dictionary manager stores the definition information into the dictionary.

Claim 30 is also patentable in reciting a storage area specification component for referencing to the dictionary through the dictionary manager, and searching at least one of the data storage areas identified as the scope of a search, the identified data storage areas being specified by one or more given key values. Further, claim 30 is patentable as reciting a request execution controller for receiving respective first and second queries to obtain specification component information of the data storage areas which are determined by key values specified by the first and second queries corresponding to first and second columns, and receiving and inserting data included in an insertion request into the data storage area obtained through the specification component, the obtained data storage area being determined by a key value included in the insertion request and corresponding to a column to which the plurality of key ranges were allocated. For reasons similar to those argued above with respect to method claim 27, apparatus claim 30 is neither disclosed nor suggested by Zait.

Independent claim 33 is directed to a computer readable recording medium that stores a database processing program, wherein the program, when executed by a computer, causes the computer to perform a method comprising steps including identifying columns of a relational database table to each of which a key range partitioning is applied, wherein the columns consist of more than two of those contained in a database table, wherein each of the columns corresponds to one of

multiple dimensions and corresponding dimensional order, and is provided with a plurality of key ranges beforehand; allocating one data storage area for each of the key ranges; creating definition information defining how each of the data storage areas is allocated to one of the key ranges, and storing the definition information into a dictionary; referencing to the dictionary in response to a first or second query, and searching at least one of the data storage areas identified as the scope of a search, the identified data storage areas being specified by key values included in the first or second query and corresponding to a first or second column, respectively. Further, in response to a request of a data insertion to the database table, the method searches the dictionary and inserts data included in the request into the identified data storage area, the identified data storage area being specified by a key value included in the request and corresponding to the column to which the plurality of key ranges were allocated. Thus, claim 33 is patentable for reasons similar to those argued above.

Each of the respective dependent claims inherits the patentability of its independent claim, and is further separately patentable for reasons evident from the recitation of the claims, but which will not be argued separately here for brevity.

In view of the foregoing amendments and remarks, the Applicants request reconsideration of the rejection and allowance of the claims.

To the extent necessary, the Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to

the deposit account of Mattingly, Stanger, Malur & Brundidge, P.C., Deposit Account No. 50-1417 (referencing attorney docket no. NIT-226-02).

Respectfully submitted,

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FORM PTO-1449 (REV. 7-80)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. NIT-226-02	SERIAL NO.
LIST OF DOCUMENTS CITED BY APPLICANT *(Use several sheets if necessary)*		APPLICANT K. YANASE et al	
		FILING DATE 02/24/04	GROUP 2177

U.S. PATENT DOCUMENTS

* EXAMINER INITIAL		DOCUMENT	DATE	NAME	CLASS	SUBCLASS	FILING DATE *(If Appropriate)*
	AA	5,515,531	05/07/96	Fujiwara et al			
	AB	6,161,105	12/2000	Keighan et al			
	AC	6,003,036	12/1999	Martin			
	AD	5,983,215	11/1999	Ross et al			
	AE	6,421,612	07/2002	Agrafiotis et al			
	AF	5,761,652	06/1998	Wu et al			
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS

		DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO
	AL	10-240744	09/11/98	Japan			☐	☐
	AM	10-269225	10/09/98	Japan			☐	☐
	AN	06-314299	11/08/94	Japan			☐	☐
	AO	06-139119	05/20/94	Japan			☐	☐
	AP						☐	☐

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, etc.)*

	AR		
	AS		
	AT		

EXAMINER	DATE CONSIDERED

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.